SmartSwitch 9000
9E428-12/36 and 9E429-12/36
Local Management Appendix

9032034-01

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Appendix

9E428-12/36 and 9E429-12/36 Module Specific Information

Introduction

This appendix contains local management information that is specific to the following Ethernet modules:

- 9E428-12 (12 Ports, Multimode Fiber, ST connectors)
- 9E428-36 (36 Ports, Multimode Fiber, ST connectors)
- 9E429-12 (12 Ports, Single-Mode Fiber, ST connectors)
- 9E429-36 (36 Ports, Single-Mode Fiber, ST connectors)

The 9E428-12 and 9E429-12 Ethernet Modules are 13-port switching modules with:

- 12 front panel Ethernet ports
- 1 Internal Network Bus (INB) backplane port

The 9E428-36 and 9E429-36 Ethernet Modules are 37-port switching modules with:

- 36 front panel Ethernet ports
- 1 Internal Network Bus (INB) backplane port

Each front-panel port of the 9E428-12/36 and 9E429-12/36 can be configured to operate in the Full Duplex mode. This configuration allows each port to provide a full 20 Mbps of bandwidth.

Modifying Fields and User Privileges

To modify fields on these modules, you must have read-write or super-user privileges. If you have read-only privileges, you can view information; however, you cannot modify any fields. For more information about user privileges and community names, see the *SmartSwitch 9000 Module Local Management User's Guide*.

Module Interface Codes

The 9E428-36 and 9E429-36 Ethernet Modules have 41 interfaces. The 9E428-12 and 9E429-12 Ethernet Modules have 17 interfaces. Table 1 lists the identifying number, name, and description of each interface.

Table 1. 9E428-36 and 9E429-36 Module Interface Codes

Interface Number	Interface Name	Interface Description
1	SMB1	1 Mbps System Management Bus
2	SMB10	10 Mbps System Management Bus
3	HOST	i960 Host
4	LOCAL	i960 Controller
5	INB	Internal Network Bus
6	ENET1	Ethernet Front Panel Port 1
7	ENET2	Ethernet Front Panel Port 2
8	ENET3	Ethernet Front Panel Port 3
9	ENET4	Ethernet Front Panel Port 4
10	ENET5	Ethernet Front Panel Port 5
11	ENET6	Ethernet Front Panel Port 6
12	ENET7	Ethernet Front Panel Port 7
13	ENET8	Ethernet Front Panel Port 8
14	ENET9	Ethernet Front Panel Port 9
15	ENET10	Ethernet Front Panel Port 10
16	ENET11	Ethernet Front Panel Port 11
17	ENET12	Ethernet Front Panel Port 12

Table 1. 9E428-36 and 9E429-36 Module Interface Codes (Continued)

Interface Number	Interface Name	Interface Description
18	ENET13	Ethernet Front Panel Port 13
19	ENET14	Ethernet Front Panel Port 14
20	ENET15	Ethernet Front Panel Port 15
21	ENET16	Ethernet Front Panel Port 16
22	ENET17	Ethernet Front Panel Port 17
23	ENET18	Ethernet Front Panel Port 18
24	ENET19	Ethernet Front Panel Port 19
25	ENET20	Ethernet Front Panel Port 20
26	ENET21	Ethernet Front Panel Port 21
27	ENET22	Ethernet Front Panel Port 22
28	ENET23	Ethernet Front Panel Port 23
29	ENET24	Ethernet Front Panel Port 24
30	ENET25	Ethernet Front Panel Port 25
31	ENET26	Ethernet Front Panel Port 26
32	ENET27	Ethernet Front Panel Port 27
33	ENET28	Ethernet Front Panel Port 28
34	ENET29	Ethernet Front Panel Port 29
35	ENET30	Ethernet Front Panel Port 30
36	ENET31	Ethernet Front Panel Port 31
37	ENET32	Ethernet Front Panel Port 32
38	ENET33	Ethernet Front Panel Port 33
39	ENET34	Ethernet Front Panel Port 34
40	ENET35	Ethernet Front Panel Port 35
41	ENET36	Ethernet Front Panel Port 36

Use the numbers listed in Table 1 to configure the module's default interface (see the General Configuration Screen).

Full Duplex Configuration Screen

The 9E428-12/36 and 9E429-12/36 Full Duplex Configuration Screen (Figure 1), displays the port number, operation mode, link status, and port status of the module's ports (12 ports at a time).

```
                SmartSwitch 9000  Local Management

                    Full Duplex Configuration

Module Name: 9E428-36                       Firmware Revision: 01.04.07
Slot Number: 9                              BOOTPROM Revision: 01.01.01

 PORT#       OPERATION MODE       LINK STATUS       PORT STATUS

    1         STANDARD ENET         No Link          ENABLED
    2         STANDARD ENET         No Link          ENABLED
    3         STANDARD ENET         No Link          ENABLED
    4         STANDARD ENET         No Link          ENABLED
    5         STANDARD ENET         No Link          ENABLED
    6         STANDARD ENET         No Link          ENABLED
    7         STANDARD ENET         No Link          ENABLED
    8         STANDARD ENET         No Link          ENABLED
    9         STANDARD ENET         No Link          ENABLED
   10         STANDARD ENET         No Link          ENABLED
   11         STANDARD ENET         No Link          ENABLED
   12         STANDARD ENET         No Link          ENABLED

 SAVE            [ 13-24 ]   SET ALL PORTS:   FULL      EXIT    RETURN
```

Figure 1. 9E428-12/36 and 9E429-12/36 Full Duplex Configuration Screen

Full Duplex Configuration Screen Fields

The following information briefly explains each Full Duplex Configuration Screen field.

OPERATION MODE (Modifiable)

Indicates whether the specified port will transmit and receive data separately or simultaneously. You can set this field to one of the following values:

- STANDARD ENET - The port can either transmit data or receive data, but not both at the same time. Therefore, the port is running at 10 Mbps (this is the **default**).
- FULL DUPLEX - The port can transmit and receive data at the same time. Therefore, the port is running at 20 Mbps.

LINK STATUS

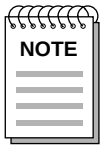
Indicates whether there is a physical connection from this port to another 10Base-FL device. One of the following values appears:

- Link - There is a 10Base-FL link signal present; there is a valid physical connection from this port to another 10Base-FL device.
- No Link - There is no 10Base-FL link signal present; there is no valid physical connection from this port to another 10Base-FL device.

PORT STATUS

Indicates whether the port has been turned on or off administratively. You will see one of the following values:

- ENABLED - The port is turned on administratively.
- DISABLED - The port is turned off administratively.



Enable or disable ports from the Bridge Configuration screen.

Displaying Information About Other Ports

To display information about other ports:

1. Use the arrow keys to highlight one of the following fields (located at the bottom of the Full Duplex Configuration Screen):

- **[1-12]** (for the first 12 ports)
- **[13-24]** (for the next 12 ports, if applicable)
- **[25-36]** (for the last 12 ports, if applicable)

2. Press the **Return** key.

Setting One Ethernet Port to Full Duplex

To set one Ethernet port to Full Duplex (for example, port 1):

1. Use the arrow keys to highlight **STANDARD ENET** in the Operation Mode field (to the right of port 1).
2. Press the **Space Bar** until **FULL DUPLEX** appears in the field.
3. Use the arrow keys to highlight the **SAVE** command on the bottom line of the screen.
4. Press the **Return** key.

Setting All Ethernet Ports to Full Duplex

To set all Ethernet ports to Full Duplex:

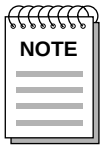
1. Use the arrow keys to highlight the **SET ALL PORTS** field.
2. Press the **Space Bar** until you see **FULL**.
3. Use the arrow keys to highlight the **SAVE** command on the bottom line of the screen.
4. Press the **Return** key.

Switch Configuration Screen

The 9E428-12/36 and 9E429-12/36 Switch Configuration Screen (Figure 2), provides basic setup options for making a switch operational in your network.

```
                SmartSwitch 9000  Local Management

                       Switch Configuration

Module Name: 9E428-36                        Firmware Revision: 01.04.07
Slot Number: 9                               BOOTPROM Revision: 01.01.01

Switch Address:        00-00-1D-00-08-78     Type of STA:      [IEEE]
Numbers of Ports:      37

Port #             MAC Address               State           Status

     1             00-00-1D-00-08-78         forwarding      [ENABLED]
     2             00-00-1D-00-08-79         forwarding      [ENABLED]
     3             00-00-1D-00-08-7A         forwarding      [ENABLED]
     4             00-00-1D-00-08-7B         forwarding      [ENABLED]
     5             00-00-1D-00-08-7C         forwarding      [ENABLED]
     6             00-00-1D-00-08-7D         forwarding      [ENABLED]
     7             00-00-1D-00-08-7E         forwarding      [ENABLED]
     8             00-00-1D-00-08-7F         forwarding      [ENABLED]


 SAVE                            [  9-16 ]        EXIT        RETURN
```

Figure 2. 9E428-12/36 and 9E429-12/36 Switch Configuration Screen



Port # refers to the following:

- *Port 1 - INB*
- *Port 2 - Front Panel Port 1*
- *Port 3 - Front Panel Port 2*
- *Port 4 - Front Panel Port 3*
- *Port 5 - Front Panel Port 4*
- *Port 6 - Front Panel Port 5*
- *Port 7 - Front Panel Port 6*
- *Port 8 - Front Panel Port 7*
- *Port 9 - Front Panel Port 8*
- *Port 10 - Front Panel Port 9, and so on.*

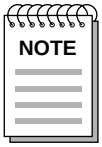
Switch Configuration Screen Fields

The following information briefly explains each Switch Configuration Screen field.

Type of STA (Toggle)

Allows you to set the method that switches use to decide which switch is the controlling (Root) switch when two or more switches exist in parallel (Spanning Tree Algorithm). Press the **Space Bar** to toggle to the desired value. Valid types are:

- DEC
- IEEE
- NONE



All switches in a network must use the same Spanning Tree protocol. The IEEE protocol has a unique format for its Bridge Protocol Data Units (BPDU). Trying to mix STA protocols results in an unstable network.

Port

Displays the number of the port for which configuration information is displayed.

MAC Address

Lists the hardware address of each listed switch interface.

State

Displays the current state of each listed interface. The possible interface states include:

Disabling: Management has disabled this interface. No traffic can be received or forwarded while the interface is disabled.

Learning: The switch is learning this interface's network addresses. The switch enters the learning state when the Transparent Database is created (during start-up or after being deleted), or when the Spanning Tree Algorithm detects a network topology change.

Listening: The switch is not adding information to the Transparent Database. The switch is monitoring BPDU traffic while preparing to move from the learning to the forwarding state.

Forwarding: The switch is on-line and this interface is forwarding traffic.

Blocking: This interface will not forward any traffic through the switch.

Status (Toggle)
Allows you to set the forwarding status of the listed interface (either ENABLED or DISABLED). Press the **Space Bar** to toggle to the desired value. Valid entries are:

- ENABLED
- DISABLED

Displaying Other Ports

To display other ports:

1. Use the arrow keys to highlight one of the following fields (located at the bottom of the Switch Configuration Screen):
   - [9-16] - for ports 9 through 16
   - [17-24] - for ports 17 through 24
   - [25-32] - for ports 25 through 32
   - [33-37] - for ports 33 through 37
2. Press the **Return** key.

Port Statistics Screen

The 9E428-12/36 and 9E429-12/36 Port Statistics Screen (Figure 3), displays information and statistics about the module's Ethernet ports.

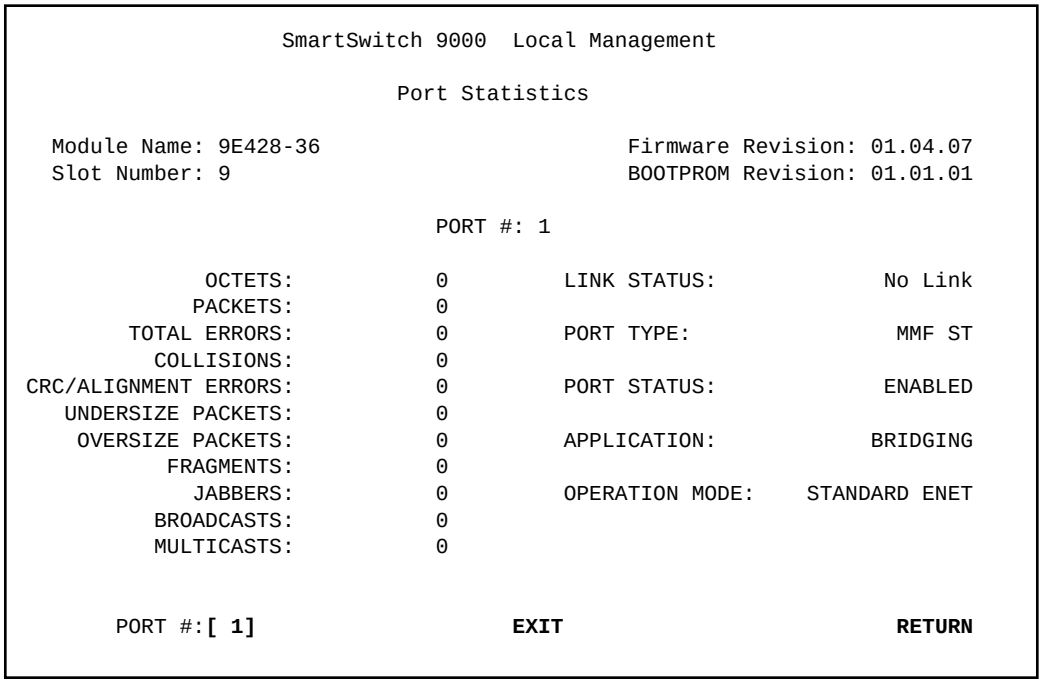


Figure 3. 9E428-12/36 and 9E429-12/36 Port Statistics Screen

Port Statistics Screen Fields

The following information briefly explains each Port Statistics Screen field.

PORT #
Indicates the current port for which statistics are displayed.

OCTETS
Displays the number of octets transmitted and received.

PACKETS
Displays the number of packets transmitted and received.

TOTAL ERRORS
Displays the total number of errors on this port.

COLLISIONS
Displays the total number of collisions detected on this port.

CRC/ALIGNMENT ERRORS
Displays the number of packets with bad Cyclic Redundancy Checks (CRC) that have been received from the network. The CRC is a 4-byte field in the data packet that ensures that the transmitted data that is received is the same as the data that was originally sent. Alignment errors are due to misaligned packets.

UNDERSIZE PACKETS
Displays the number of packets received whose size was less than the minimum Ethernet frame size of 64 bytes, not including preamble.

OVERSIZE PACKETS
Displays the number of packets received whose size exceeded 1518 data bytes, not including preamble.

FRAGMENTS
Displays the total number of packets received that were not an integral number of octets in length or that had a bad Frame Check Sequence (FCS), and were less than 64 octets in length (excluding framing bits but including FCS octets).

JABBERS
Displays the total number of packets received that were longer than 1518 octets (excluding framing bits, but including Frame Check Sequence (FCS) octets), and were not an integral number of octets in length or had a bad Frame Check Sequence.

BROADCASTS
Displays the number of broadcasts received.

MULTICASTS
Displays the number of multicasts received.

LINK STATUS
Indicates whether there is a physical connection from this port to another 10Base-FL device. One of the following values appears:

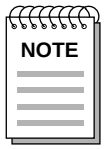
- Link - There is a 10Base-FL link signal present; there is a valid physical connection from this port to another 10Base-FL device.
- No Link - There is no 10Base-FL link signal present; there is no valid physical connection from this port to another 10Base-FL device.
- N/A

PORT TYPE
Displays one of the following values:

- MMF ST
- SMF ST

PORT STATUS
Indicates whether the port has been turned on or off administratively. You will see one of the following values:

- ENABLED - The port is turned on administratively.
- DISABLED - The port is turned off administratively.



Enable or disable ports from the Bridge Configuration screen.

APPLICATION
Displays BRIDGING, indicating that the port is operating as a bridge with a high-speed backbone connection.

OPERATION MODE
Displays one of the following values:

- STANDARD ENET - The port can either transmit data or receive data, but not both at the same time. Therefore, the port is running at 10 Mbps.
- FULL DUPLEX - The port can transmit and receive data at the same time. Therefore, the port is running at 20 Mbps.

PORT # (Modifiable)
Selects the port for which statistics are to be displayed.

Displaying Statistics for Another Port

To display statistics for another port:

1. Use the arrow keys to highlight the **Port #** field at the bottom of the screen.
2. Press the **Space Bar** to increment (or press the **Backspace** key to decrement) the port number.
3. Press the **Return** key (neither the read-only **Port #** field nor the statistics will change until you press the **Return** key).

Exiting the Port Statistics Screen

To exit the Port Statistics screen, use the arrow keys to highlight **RETURN**, then press the **Return** key.

System Resources Screen

The 9E428-12/36 and 9E429-12/36 System Resources Screen (Figure 4), displays information about current and available resources on the module.

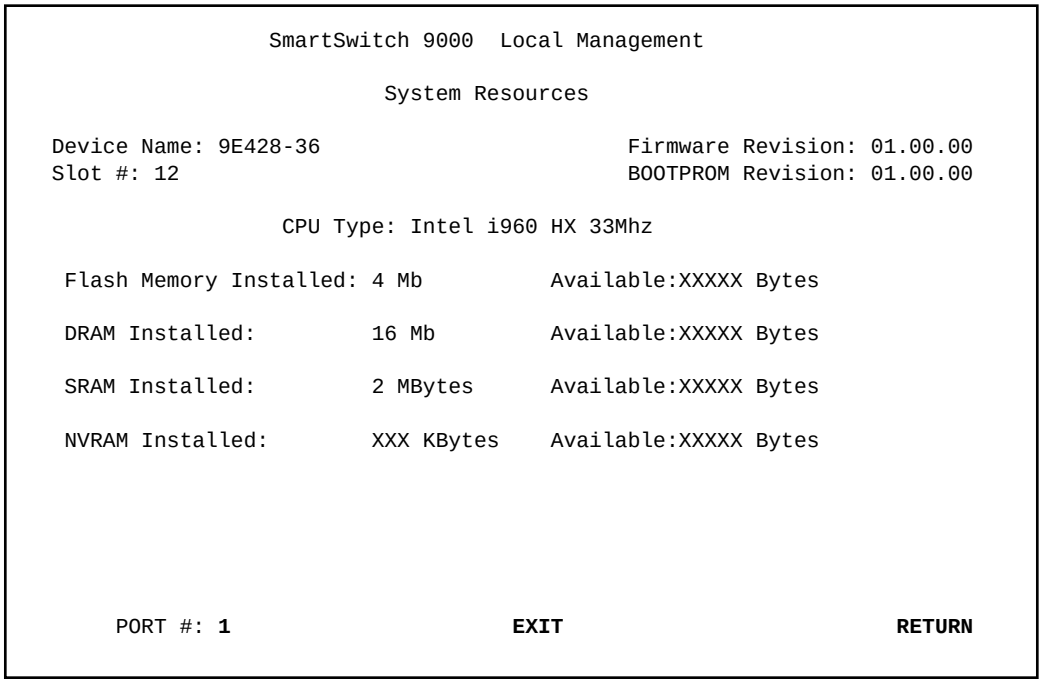


Figure 4. 9E428-12/36 and 9E429-12/36 System Resources Screen

System Resources Screen Fields

The following information briefly explains each System Resources Screen field.

Flash Memory Installed/Available
Displays the size of Flash Memory and indicates how many bytes are currently available.

DRAM Installed/Available
Displays the size of dynamic random access memory (DRAM) and indicates how many bytes are currently available.

SRAM Installed/Available
Displays the size of static random access memory (SRAM) and indicates how many bytes are currently available.

NVRAM Installed/Available
Displays the size of non-volatile random access memory (NVRAM) and indicates how many bytes are currently available. NVRAM is used to store user-entered parameters such as IP addresses, subnet masks, default gateways, SNMP traps, bridge configurations, and module specific configurations.